

REMARKS

Entry of the foregoing amendment is respectfully requested. In the Office Action mailed September 27, 2007, the Examiner has rejected claims 22-28 and 67, and objected to claims 29, 30 and 43. In this response, claims 22 and 29 have been amended and new claims 69-71 added. Thus, claims 1-68 are pending of which claims 1-21, 31-42, 44-66 and 68 are withdrawn from consideration.

Specifically, the Examiner has 1) acknowledges the applicant's election with traverse of Group I; 2) rejected claims 22-28 under 35 U.S.C. 103(a) as being unpatentable over Jacques (US 4364008) in view of Gabriel et al. (Use of time domain spectroscopy for measuring dielectric properties with a coaxial probe, 1986) and Kraszewski et al. (Microwave Resonant Cavities for Sensing Moisture and Mass of Single Seeds and Kernels, 1992); 3) rejected claims 22 and 67 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Misra (US 5233306) and Kraszewski; and 4) objected to claims 29-30 and 43 as being dependent upon a rejected base claim.

Restriction under 35 U.S.C. 121

In the Office Action dated July 10, 2007 the Examiner imposed a restriction requirement under 35 U.S.C. 121 in which the office divided the claims into four groups: Group I, including claims 22-30, 43 and 67; Group II, including claim 53; Group III, including claims 56-65 and 68; and Group IV, including claim 66. The applicants elected Group I with traverse on the grounds that insofar that there can be no "serious burden" on the office for the continued examination of the subject matter of these claims if the restriction is not imposed. The Examiner did not find the

applicants traversal persuasive and the applicants hereby withdraw, without prejudice to the subject matter contained therein, from consideration claims 53, 55-66 and 68 by this response.

Rejection of claims 22-28 under 35 U.S.C. 103(a)

The Examiner rejected claims 22-28 under 35 U.S.C. 103(a) as being unpatentable over Jacques (US 4364008) in view of Gabriel et al. (Use of time domain spectroscopy for measuring dielectric properties with a coaxial probe, 1986) and Kraszewski et al. (Microwave Resonant Cavities for Sensing Moisture and Mass of Single Seeds and Kernels, 1992).

Specifically, the Examiner asserts that Jacques discloses all of the elements of claim 22 except for determining electrical impedance using the measured resonant frequency shift. In the method of the present invention the electrical impedance of a sample is measured using a microwave cavity probe which comprises a resonant microwave cavity having an aperture in an electrically conducting endwall and a center conducting element comprising a tip that extends through the aperture beyond the endwall. In contrast in Jacques, the probe 16 comprises first 30 and second 32 conductors with a gap between [FIG. 2(a): column 2 line 59 to column 3 line 11]; a pattern of alternating first 130(a-d) and second 132(a-d) conductors with a gap 134 between conductors [FIG. 2(b): column 3 lines 12 to 34]; a first conductor 230 and a plurality of second conductors 232(a-d) in which the second conductors are positioned at different distances from the first conductor [FIG. 2(c): column 3 lines 35 to 56]; and a plurality of spaced conductors 330(a-h) [FIG. 2(d): column 3 line 57 to column 4 line 9]. In each embodiment the conductors

of the probe are connected to a respective one of first 26 and second 28 connectors of the coaxial cable 14. The coaxial cable 14, which forms the resonant cavity, terminates in the two connectors 26 and 26 [column 2 lines 60 to 63]. Jacques thus neither explicitly nor implicitly teaches a microwave cavity probe in which a center conducting element comprising a tip extends through and beyond an aperture in an electrically conducting endwall of a resonant microwave cavity. Claim 22 has been amended by this response to more clearly define the probe of the present invention and to distinguish the invention over Jacques. The basis for this amendment to claim 22 is to be found in claim 1 of the application as filed. Furthermore, it is submitted that Gabriel neither explicitly teaches nor directs a skilled person to such a probe arrangement. Accordingly, it is submitted that even if the teachings of Gabriel were combined with that of Jacques this will not result in a disclosure of the present invention as defined in amended claim 22. In conclusion, it is believed that amended claim 22 is patentable over Jaques in view of Gabriel.

Since claims 23-28 depend directly from claim 22, claims 23-28 are believed to be patentable as well.

Rejection of claims 22 and 67 under 35 U.S.C. 102(b) and 35 U.S.C. 103(a)

The Examiner rejected claims 22 and 67 under 35 U.S.C. 102(b) as anticipated by Misra (US 5233306) or, in the alternative rejected claims 22 and 67 under 35 U.S.C. 103(a) as obvious over Misra (US 5233306) and Kraszewski.

Specifically, the Examiner asserts that the probe of Misra has a tip extending from a microwave cavity. In Misra the probe 108 comprises a coaxial line with an open first end 124 placed near the sample [column 5 lines 31 to 33]. Misra is silent

as to a tip extending from the coaxial line. Accordingly it is believed that amended claim 22 is novel over Misra.

In the alternative the Examiner asserts that claim 22 is obvious in view of Misra and Kraszewski. Kraszewski concerns sensing the moisture and mass of single seeds and kernels using microwave resonant cavities and is based on the change in dissipation (magnitude) and dispersion (resonant frequency) of electromagnetic waves interacting with the sample in the cavity which depend on the permittivity of the sample [page 555, column 2, paragraph 3]. The sample (seed/kernel) is inserted in the cavities through small ports in the wide wall of the waveguide at the center of the cavity [page 556, column 1, paragraph 4]. Consequently, Kraszewski neither teaches nor guides a skilled person to the microwave cavity probe having a tip extending from a microwave cavity. Accordingly, even if Misra and Kraszewski were to be combined this would not result in a disclosure of the present invention and it is believed that amended claim 22 is patentable over Misra and Kraszewski.

Since claim 67 depends directly from claim 22, claim 67 is believed to be patentable as well.

Objection to claims 29-30 and 43 as being dependent upon a rejected base claim

The Examiner objected to claims 29-30 and 43 as being dependent upon a rejected base claim, and indicated these claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 29 has been so amended, and thus claims 29-30 and 43 are now in condition for allowance.

New dependent claims 69-71 are being filed by this response. These claims correspond to claims 29-30 and 43 respectively. Since claims 69-71 depend either directly or indirectly from amended claim 22, it is believed that claims 69-71 are patentable as well.

CONCLUSIONS

Entry of the foregoing amendment is respectfully requested. Claims 53, 55-66 and 68 are currently withdrawn, claims 22 and 29 are currently amended and new claims 69-71 currently added. Thus, claims 22-30, 43, 67 and 69-71 are pending.

In view of the foregoing, the Applicant believes that claims 22-30, 43, 67 and 69-71 are in condition for allowance. An issuance of a formal Notice of Allowance at an early date is respectfully requested.

Should the Examiner feel that a telephone conference would advance prosecution of the present application, he is invited to call the undersigned attorney at the number listed below.

Respectfully submitted,

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